



PATENT  
5053-00508

THE UNITED STATES PATENT AND TRADEMARK OFFICE

Application No.: 10/735,280  
Confirmation No.: 3615  
Filing Date: December 12, 2003  
Inventors: Houle et al.  
Title: SYSTEMS AND METHODS  
FOR HANDWRITING  
ANALYSIS IN DOCUMENTS

§ Examiner: Unknown  
§ Art Unit: 2621  
§ Atty. Dkt. No.: 5053-00508  
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Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313

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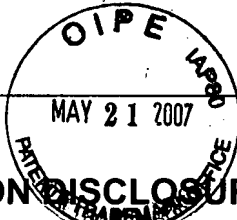
Should any fees be required, the Commissioner is authorized to charge said fees to Meyertons, Hood, Kivlin, Kowert & Goetzel, P.C. Deposit Account No. 50-1505/5053-00508/EBM.

Respectfully submitted,

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Date: May 18, 2007

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**NON-PATENT LITERATURE DOCUMENTS**

Examiner Initials*	Cite No	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc), date, pages(s), volume-issue number(s), publisher, city and/or country where published.	T <sup>5</sup>
	1	R1. Arazi, B.: 1977, Handwriting identification by means of run-length measurements, IEEE Trans. Syst., Man and Cybernetics SMC-7 (12), 878-881.	<input type="checkbox"/>
	2	R2. Arazi, B.: 1983, Automatic handwriting identification based on the external properties of the samples, IEEE Trans. Syst., Man and Cybernetics SMC-13 (4), 635-642.	<input type="checkbox"/>
	3	R3. Drouhard, J., Sabourin, R. and Godbout, M.: 1995, A comparative study of the k nearest neighbours, threshold and neural network classifiers for handwritten signature verification using an enhanced directional pdf, Proc. of the 3rd International Conference on Document Analysis and Recognition, Montreal, Canada, pp. 807-810.	<input type="checkbox"/>
	4	R4. Klement, V.: 1983, An application system for the computer-assisted identification of handwriting, Proc. Int. Carnahan Conf. on Security Technol., Zurich, Switzerland, pp. 75-79.	<input type="checkbox"/>
	5	R5. Kondo, S. and Attachoo, B.: 1986, Model of handwriting process and its analysis, Proc. ICPR, pp. 562-565.	<input type="checkbox"/>
	6	R6. Maarse, F., Schomaker, L. and Teulings, H.L.: 1988, Automatic identification of writers, in G. van der Veer and G. Mulder (eds), Human-Computer Interaction: Psychonomic Aspects, Springer, New York, pp. 353-360.	<input type="checkbox"/>
	7	R7. Maarse, F. and Thomassen, A.: 1983, Produced and perceived writing slant: differences between up and down strokes, ACTA Psychologica 54 (1-3), 131-147.	<input type="checkbox"/>
	8	R8. Plamondon, R. and Srihari, S.N.: 2000, On-line and off-line handwriting recognition: a comprehensive survey, IEEE Transactions on Pattern Analysis and Machine Intelligence 22 (1), 63-84.	<input type="checkbox"/>
	9	R9. Plamondon, R. and Lorette, G.: 1989, Automatic signature verification and writer identification-the state of the art, Pattern Recognition 22 (2), 107-131.	<input type="checkbox"/>

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10	R10. Sabourin, R. and Drouhard, J.: 1992, Off-line signature verification using directional pdf and neural networks, Proc. of the 11th International Conference on Pattern Recognition (ICPR 1992), The Hague, Netherlands, pp. 321-325.	<input type="checkbox"/>
11	R11. Said, H., Peake, G., Tan, T. and Baker, K.: 1998, Writer identification based on handwriting, Pattern Recognition 33 (1), 149-160.	<input type="checkbox"/>
12	R12. Steinke, K.: 1981, Recognition of writers by handwriting images, Pattern Recognition 14 (1-6), 357-364.	<input type="checkbox"/>
13	R13. Vuurpijl, L. and Schomaker, L.: 1997, Finding structure in diversity: A hierarchical clustering method for the categorization of allographs in handwriting, Proc. of 4th ICDAR, IEEE, Ulm, Germany, pp. 387-393.	<input type="checkbox"/>
14	R14. Zois, E. and Anastassopoulos, V.: 2000, Morphological waveform coding for writer identification, Pattern Recognition 33 (3), 385-398.	<input type="checkbox"/>
15	R15. Bajaj, R. and Chaudhury, S., "Signature Verification Using Multiple Neural Classifiers," Pattern Recognition, vol. 30, no. 1, pp. 1-7, 1997.	<input type="checkbox"/>
16	R16. Bauer, F. and Wirtz, B., "Parameter Reduction and Personalized Parameter Selection for Automatic Signature Verification," Proc. 3rd International Conference Document Analysis and Recognition (ICDAR '95), pp. 183-186, Montreal, Aug. 1995.	<input type="checkbox"/>
17	R17. Bouletreau, V. Vincent, N., Sabourin, R. and Emptoz, H., "Handwriting and Signature: One or Two Personality Identifiers?" Proc. 14th International Conference Pattern Recognition, pp. 1,758-1,760, Brisbane, Australia, Aug. 1998.	<input type="checkbox"/>
18	R18. Cardot, H., Revenu, M., Victorri, B. and Revillet, M.J., "A Static Signature Verification System Based on a Cooperative Neural Network Architecture," Int'l J. Pattern Recognition and Artificial Intelligence, vol. 8, no. 3, pp. 679-692, 1994.	<input type="checkbox"/>
19	R19. Cordella, C.P., Foggia, P., Sansone, C. and Vento, M., "Document Validation by Signatures: A Serial Multi-Expert Approach," Proc. International Conference Document Analysis and Recognition (ICDAR '99), pp. 601-604, Bangalore, India, Sept. 1999.	<input type="checkbox"/>
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21	R21. Dolfing, J.G.A., Aarts, E.H.L. and Van Oosterhout, J.J.G.M., "On-Line Verification Signature with Hidden Markov Models," Proc. 14th International Conference Pattern Recognition, pp. 1,309-1,312, Brisbane, Australia, Aug. 1998.	<input type="checkbox"/>
22	R22. Drouhard, J.P., Sabourin, R. and Godbout, M., "Neural Network Approach to Off-Line Signature Verification Using Directional PDF," Pattern Recognition, vol. 29, no. 3, pp. 415-424, 1996.	<input type="checkbox"/>
23	R23. Foltyniewicz, R. and Sitnik, M., "Verification of Persons via Face and Signature Analysis," Proc. International Conference Image Processing (ICIP), vol. 3, pp. 495-498, 1996.	<input type="checkbox"/>
24	R24. Guillevic, D. and Suen, C.Y., "HMM-KNN Word Recognition Engine for Bank Cheque Processing," Proc. 14th International Conference Pattern Recognition, pp. 1,526-1,529, Brisbane, Australia, Aug. 1998.	<input type="checkbox"/>
25	R25. Guo, J.K., Doermann, D. and Rosenfeld, A., "Local Correspondence for Detecting Random Forgeries," Proc. 4th International Conference Document Analysis and Recognition (ICDAR '97), pp. 319-323, Ulm, Germany, Aug. 1997.	<input type="checkbox"/>
26	R26. Huang, K. and Yan, H., "Off-Line Signature Verification Based on Geometric Feature Extraction and Neural Network Classification," Pattern Recognition, vol. 30, no. 1, pp. Sept. 17, 1997.	<input type="checkbox"/>
27	R27. Kim, G. and Govindaraju, V., "Bankcheck Recognition Using Cross Validation Between Legal and courtesy Amounts," International Journal Pattern Recognition and Artificial Intelligence, vol. 11, no. 4, pp. 657-674, 1997.	<input type="checkbox"/>
28	R28. Kim, s.H., Park, M.S. and Kim J., "Applying Personalized Weights to a Feature Set for On-Line Signature Verification," Proc. 3rd International Conference Document Analysis and Recognition (ICDAR '95), pp. 882-885, Montreal, Aug. 1995.	<input type="checkbox"/>
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31	R31. Mackowiak, J., Schomaker, L.R.B. and Vuurpijl, L., "Semi-Automatic Determination of Allograph Duration and Position in On-Line Handwriting Words Based on the Expected Number of Strokes," Progress in Handwriting Recognition. A.C. Downton and S. Impedovo, eds., London: World Scientific, 1997.	<input type="checkbox"/>

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32	R32. Olivier, C., Paquet, T., Avila, M. and Lecourtier, Y., "Optimal Order of Markov Models Applied to Bankchecks," International Journal Pattern Recognition and Artificial Intelligence, vol. 11, no. 5, pp. 789-800, 1997.	<input type="checkbox"/>
33	R33. Qi, Y. and Hunt, B.R., "Multiresolution Approach to a Computer Verification of Handwritten Signatures," IEEE Trans. Image Processing, vol. 4, no. 6, pp. 870-874, 1995.	<input type="checkbox"/>
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35	R35. Sabourin, R. Drouhard, J.P. and Wah, E.S., "Shape Matrices as a Mixed Shape Factor for Off-Line Signature Verification," Proc. 4th International Conference Document Analysis and Recognition (ICDAR '97), pp. 661-665, Ulm, Germany, Aug. 1997.	<input type="checkbox"/>
36	R36. Sabourin, R., Genest, G. and Preteux, F., "Off-Line Signature Verification by Local Granulometric Size Distributions," IEEE Trans. Pattern Analysis and Machine Intelligence, vol. 19, no. 9, pp. 976-988, 1997.	<input type="checkbox"/>
37	R37. Sabourin, R., Plamondon, R. and Lorette, G., "Off-Line Identification with Handwritten Signature Images: Survey and Perspectives," Structured Document Image Analysis. H. Baird, H. Bunke, and K. Yamamoto, eds., pp. 219-234, Berlin, Heidelberg, New York, Tokyo: Springer-Verlag, 1992.	<input type="checkbox"/>
38	R38. Sagar, V.K., Chong, S.W., Leedham, C.G. and Solihin, Y., "Slant Manipulation and Character Segmentation for Forensic document Examination," IEEE TENCON--Digital Signal Processing Applications, pp. 933-938, 1996.	<input type="checkbox"/>
39	R39. Deng, P.S., Liao, H.Y.M., Ho, C.W. and Tyan, H.R., "Wavelet-Based Off-Line handwritten Signature Verification," Computer Vision Image Understanding, 76 (3), pp. 173-190, 1999.	<input type="checkbox"/>
40	R40. Wirtz, B., "Stroke-Based Time Warping for Signature Verification," Proc. 3rd International Conference Document Analysis and Recognition (ICDAR '95), pp. 179-182, Montreal, Aug. 1995.	<input type="checkbox"/>
41	R41. Yang, L., Widjaja, B.K. and Prasad, R., "Application of Hidden Markov Models for Signature Verification," Pattern Recognition, vol. 28, no. 2, pp. 161-170, 1995.	<input type="checkbox"/>
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43	R43. de Jong, W., Kroon van der Kooij, L. and Schmidt, D.: 1994, Computer aided analysis of handwriting, the NIFO-TNO approach, Proc. of the 4th European Handwriting Conference for Police and Government Handwriting Experts.	<input type="checkbox"/>
44	R44. Huber, R.A. and Headrick, A.: 1999, Handwriting Identification: Facts and Fundamentals, CRC Press, Boca Raton.	<input type="checkbox"/>
45	R45. Klement, V.: 1981, Forensic writer recognition, in J. Simon and R. Haralick (eds), Proc. NATO Adv. Stud. Inst., pp. 519-524.	<input type="checkbox"/>
46	R46. Klement, V., Steinke, K. and Naske, R.: 1980, The application of image processing and pattern recognition techniques to the forensic analysis of handwriting, Proc. 1980 Int. Conf. Security through Sci. Engin., West Berlin, Germany, pp. 5-11.	<input type="checkbox"/>
47	R47. Kuckuck, W.: 1980, Writer recognition by spectrum analysis, Proc. 1980 Int. Conf. Security through Sci. Engin., West Berlin, Germany, pp. 1-3.	<input type="checkbox"/>
48	R48. Kuckuck, W., Rieger, B. and Steinke, K.: 1979, Automatic writer recognition, Proc. 1979 Carnahan Conf. on Crime Countermeasures, University of Kentucky, Lexington, pp. 57-64.	<input type="checkbox"/>
49	R49. Morris, R.N.: 2000, Forensic Handwriting Identification: Fundamental Concepts and Principles, first edn, Academic Press, London.	<input type="checkbox"/>
50	R50. Naske, R.: 1982, Writer recognition by prototype related deformation of handprinted characters, Proc. of the 6th International Conference on pattern Recognition, Vol. 2, Munich, Germany, pp. 819-822.	<input type="checkbox"/>

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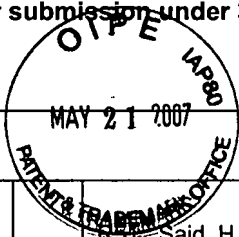
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1	R51. Said, H., Peake, G., Tan, T. and Baker, K.: 1998, Writer identification from non-uniformly skewed handwriting images, Proc. of the 9th British Machine Vision Conference, pp. 478-487.	<input type="checkbox"/>
2	R52. Schomaker, L. and Vuurpijl, L.: 2000, Forensic writer identification: A benchmark data set and a comparison of two systems [internal report for the Netherlands Forensic Institute], Technical report, Nijmegen: NICI.	<input type="checkbox"/>
3	R53. Bradford, R. and Bradford, R.B., Introduction to Handwriting Examination and Identification. Nelson-Hall, 1992.	<input type="checkbox"/>
4	R54. Dimauro, G., Impedovo, S., Pirlo, G. and A. Salzo, "Automatic Bankcheck Processing: A New Engineered System," Machine Perception and Artificial Intelligence, S. Impedovo, P.S.P. Wang, and H. Bunke, eds., vol. 28, pp. 5-42, World Scientific, 1997.	<input type="checkbox"/>
5	R55. Forte, A.M. and Impedovo, S., "A New Adaptive Neural Network for an Off-Line Signature Verification System," Proc. Int'l Conf. Pattern Recognition, pp. 355-363, 1996.	<input type="checkbox"/>
6	R56. Pattern Recognition, special issue on automatic signature verification, R. Plamondon, ed., vol. 8, no. 3, June 1994.	<input type="checkbox"/>
7	R57. Plamondon, R., Guerfali, W. and M. Lalonde, "Automatic Signature Verification: A Report on a Large-Scale Public Experiment," Proc. Ninth Biennial Conf. Int'l Graphonomics Soc., pp. 9-13, Singapore, June 1999.	<input type="checkbox"/>
8	R58. Forensic, Developmental, and Neuropsychological Aspects of Handwriting, special issue, J. Forensic Document Examination, M. Simner, W. Hulstijn, and P. Girouard, eds.,	<input type="checkbox"/>

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